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regularity they might be taken for volcanic  
cones. Now these give oddly placed green  
hills, Thaps Hall, Elboston, Heheler, Carden &  
Swinden, been formed—as have the endless  
hilly heights at the foot of the Spanish  
Brevels Mountains. By the washing from  
the hills behind them swept down in time  
of flood through many generations? The  
structure of the lesser hills of this shape  
which we see broken into here & there  
would support this theory, as they consist  
of rounded, water-worn stones, pebbles & boulders  
of fine sand.

But enter the caverns in Hale Thorpe & Elboston,  
you find that these hills are built of solid  
Mountain Limestone; that is to say, they consist  
not of mere superficial debris, but of calcareous  
rock wherein fossils of many species are  
thickly embedded. They are fragments, then  
of an ancient sea-bottom, formed, like the ~~sea~~  
which is now raising the floor of the Atlantic  
by a perpetual slow rain of microscopic shells.  
Therefore, even from having been built up  
by running water, these hills present  
themselves as ancient landmarks,  
outworks, which proved strong enough  
to resist the floods which slowly swept  
away the thick layers of Mountain limestone  
wherewith the valley was at one time filled, to  
the level, at any rate, of their summits.

This is only one of many structural problems which the aspect of this interesting neighbourhood presents.

Take, for example, the brow of the hill which rises behind Gressington & make your way through the pastures towards Dike Scar. As you get higher, the sweet-air & the close springy turf remind you of the <sup>Sussex</sup> Downs. To the right, you come upon a wide reach of flat-stones, bedded in the earth, giving an aspect of desolation to the scene. Is it a huge natural cemetery, where every grave contains a sin of Anath, the memorial stones lying so close that they touch one another? Are there stones without inscriptions, recording a history that even the unlettered may spell out; - curious curves & sweeping lines & worn hollows - water marks all, evidencing the rippling of a river in a wonderful way. It is as if every indefinite, waving, curving, unsteady, beautiful line in the flowing water had made an indelible impression in the rock. And there smooth rounded cairies, - one can almost see the pebbles at work, whirled round & round by the eddying water, sweeping away the bed that holds them with every swirl. <sup>though one may have seen</sup> the pebbles in elsewhere only the hollow <sup>seems</sup>.

And what a noble river it must have been! Three times as broad as the Wharfe. <sup>Alas!</sup> Says your practical companion. How could such a river flow at the top of a high hill a plateau <sup>such</sup>



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Such as we are upon, & these stones are on a  
level with the land on either side, where are  
the banks which should keep your river in?  
The very difficulties offer additional evidence  
of the amazing part which running water  
has played in the sculpture of the land.  
We find it easier to believe in some per-  
manently processes of upheaval & depression  
than that the river has carved out for them-  
selves the wide valley, at the bottoms of which  
we see them flowing as the mere threads.  
From the direction of the markings, the same  
on all the stones, we perceive that this river  
on the hill flowed at right angles with the  
course the Wharfe now takes. That such  
a river existed <sup>would</sup> appear uncontested; by no  
other conceivable agency <sup>than that of running water</sup> could these ripple  
marks in the rocks be accounted for. But  
rivers flow in valleys. Therefore the flat  
highland on which we stand was once a  
valley. We must construct a new landscape  
without a Wharfe river, fill up the wide  
dip in the moor <sup>which</sup> we call Wharfe-dale, raise  
banks for our ancient river, & a gradual  
slope of the land towards it, & water parting  
as we please, on either hand, we need be at no  
loss for a pattern. What has become of those  
ancient elevations? We can only offer  
a general suggestion, <sup>namely that</sup> running water  
has worn away, & carried elsewhere, the whole.  
The waters have made new channels for themselves.  
The bonny Wharfe has appeared, & has wrought out

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its valley at a lower level than that of the  
ancient river; though the general aspect of  
the landscape may be the same as of old,  
the direction of its main features has been  
altered. In considering these modifications  
of the landscape, two things should be borne  
in mind. That they require for their elaboration  
the almost limitless 'periods' claimed by the  
geologist; & that the magnesian limestone of  
which the district is composed is peculiarly  
friable. The carbonic acid gas contained in  
waters, even in the purest rain water, acts  
as an irresistible solvent upon carbonate  
of lime: and this single fact accounts  
for the endless curious phenomena  
common to districts where Mountain-lime-  
stone predominates, most of which are strikingly  
presented in the West Riding; - underground  
streams, issuing full grown from the face  
of rock, caverns, ravines, 'coves' & 'sears',  
which are sometimes awful & ruinous  
gorges & sometimes, as wildly fantastic; -  
all of them owing their origin to the fact that  
water, underground & above ground, has the power  
of slowly wearing away the limestone rock which  
it washes.

To return to the present aspect of the stony bed  
which has led to this long digression; we  
have noticed its dreary aspect, but apart from  
the interest attached to the markings in  
the stones, the spot has a beauty of its own.  
A bright green ground of hertatongue attracts the  
eye



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eye: we look closer, & behold, <sup>very opening</sup> between the stones is a lovely fernery, shut-in  
shidden by rocky walls; & there others are  
beauteous little cave dwellings, bowers of the  
fairies, where roof, walls, & floor are hung with  
feathery ferns, - long lucid fronds of  
the black maiden-hair spleenwort. ~~The~~ elegant  
beech fern, mountain parsley & bracken fern  
heart's tongue & the limestone polypody. It is  
impossible to do justice to the exceeding  
loveliness, the tender effect, of these woods,  
where Nature has displayed her ~~own~~ <sup>still</sup> taste in  
combination & arrangement, where every  
princeps feathery frond, sheltered like from  
sun, frost & storm, is delicately green &  
perfect as <sup>near as</sup> the most cherished ~~existence~~.

A little further, ~~we come to~~ <sup>the edge of</sup> Dib Seal,  
a huge mass of limestone which would  
attract much attention in a neighbourhood  
of a ~~different~~ <sup>rather</sup> character, but here it is a  
common thing for the rugged framework  
of the hills to be laid bare, & for the long lines  
of fells to end in rounded headlands,  
with walls steep & bare, & overhanging brows.  
Such is the general form of this cliff; it  
rises sidly feet in perpendicular height,  
& the brow, scanned with many a horizon  
wrinkle, marking the lines of stratification,  
overhangs the base by about fifteen feet.  
From the point, we look down into a deep ravine,  
the

the sides peatery with bracken & bramble, hardly  
of glove. & at the bottom, a tiny stream  
which breaks out from the base of the rock. For  
this gully is but an opening in the cliff.  
lovely as the chimneys of the Sal of Wight.  
The prospect is glorious; to the left is  
spread the green Wharfe valley with the dales  
that open into it, & the hills that hem it in;  
to the right, fell after fell, stretching in long  
lines away into the distance, & crowding  
so close upon one another, that only lines  
of darker shade divide them; therein lies  
the imaginative charm of the scene. You  
know that, climb the fell above it, & each  
dark line of shadow spreads out into a  
lovely valley, watered by its own stream,  
& ~~hasty~~ <sup>with</sup> ~~back~~, wooded, & bright in the sunshine,  
with many a clustering village &  
scattered farms <sup>to lend it</sup> ~~filled with~~ ~~water~~ human interest.  
A peculiar feature in the scene is the  
fortified appearance of the fells, whose upper  
slopes are terraced, & defended by breast-work  
of gigantic masonry; at least, such  
is the effect produced by the thick layers  
of protruding rock. ~~It is not a small part~~



Upper Wharfedale is a valley hollowed out of a wonderfully solid & deep layer of mountain limestone, varying from four hundred to a thousand feet in thickness. And this peculiar formation, which extends, indeed, to the whole of Craven, is not a fact interesting & important ~~only~~ to the Geologist; it marks out a tract of country of distinctive aspect & character; for it is hardly enough considered how much the contours, colours & picturesque effect of a landscape, <sup>as well as the economic value of the land,</sup> depend upon its geological formation. Thus, the mountain limestone supports a peculiarly rich sweet grass, more vividly green, more luxuriant in growth, than even the clover springs turf of the chalk downs. Craven is, in consequence, a grazing country; exquisite lawn-like slopes of meadow & pasture <sup>fall</sup> gently to the rivers; & perhaps throughout England there is hardly a more truly 'emerald vale' than that of the upper Wharfe.

The reader is sensible, perhaps, that though pleasant to the eye & good for food, <sup>(producing)</sup> this verdant landscape would demand some elements of contrast to exalt it into beauty; these, also, are afforded by its geological structure.

The limestone which supports so soft a covering is apt to wear into a scarp, a face more grim & scarred, more largely exposed, than is presented by any other rock; these frequent scars command every elbow of the valley like vast & forbidding natural fortresses.

Again, the fine appearance of the soft green lower hills leaning against the barren bosom of brown fells in the back-ground is due to the fact that millstone-grit covers much of the high ground of Craven. On the east, the millstone grit ranges of Great Wharfedale, Conistone Moor, & Grassington Moor, hem in the Wharfe valley at no great distance from the river; these high fells & wide peat-moors are thickly covered with heath, brown or purple according to the season, but always of a deep harmonious tint which the atmosphere softens into mountain bloom.

Even delight-figures new effects of colour & outline we must add that afforded by the freshness & variety of the impressions received in a country where we appear to be brought nearer to the beginnings of things. In these rugged limestone districts we find ourselves in Nature's workshop; we surprise her in the midst of her work, surrounded by rough <sup>early</sup> ~~and~~ <sup>fresh</sup> ~~and~~ <sup>that</sup> ~~has~~ been & is to be. One cannot fail to theorise, speculate, attempt to account for this & that unwonted appearance. <sup>glorious</sup> ~~various~~ theories are tenable when ~~water~~ <sup>glorious</sup> ~~scenery~~ have wrought such manifest marvels. And this particular point of Wharfedale is typical, presents in a very marked way the characteristics of such a district, a fact which must be our apology for detaining the reader so long in the rough brother of Grassington. <sup>which has less of historical or romantic interest to recommend it than any other part of the valley we purport to describe.</sup> <sup>Childsley M. & Guaden</sup>